

PLESNIK, Jan

Solved tasks concerning the animal production. Vestnik vyzk
zemedel 9 no.7:338-342 '62.

1. Clen korespondent Ceskoslovenske akademie ved; riaditel
Vyskumneho ustavu zivocisnej vyroby, Nitra.

PLESNIK, J.

One of the first in the world. p. 270. (Kridla Vlasti, No. 2, Apr 1957,
Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEM) LC, Vol. 6, No. 8, Aug 1957. Incl.

PLESNIK, Jan

Activities of the Research Institute for Animal Production in
Nitra. Vestnik vyzk zemedel 9 no.10:491-493 '62.

1. Clen korespondent Ceskoslovenske akademie ved; riaditel,
Vyskumny ustav zivocisnej vyroby, Nitra.

PLESNIK, Jan

Solved tasks concerning the animal production. Vestnik vyzk
zemedel 9 no.10:466-467 '62.

1. Clen korespondent Ceskoslovenske akademie ved; riaditel,
Vyskumny ustav zivocisnej vyroby, Nitra.

STEJSKAL, Jan; PLESNIK, Jan; HRUSKA, Ladislav; SVOBODA, Jaroslav; NAJMR, Stanislav; PREININGER, Miroslav; HAUNER, Frantisek; BENDA, Josef, inz.; KRAJCOVIC, Vladimir; VLCEK, Kvetoslav; KRBLICH, Jan; CERNY, Ladislav, Dr.; DVORACEK, Miroslav, inz. dr.; CHYTRA, Frantisek, inz.; FOLTYN, Jiri; VYSKOT, Miroslav; STAMBERA, Jaroslav, C.Sc. Doc.Inz.; KOSIL, Vladimir; STUCHLIK, Jaroslav, Inz.; NAKLADAL, Jaroslav, Inz.; RICHTER, Lev, MVDr.

Statements of directors of institutes, and of managers of workplaces of the Czechoslovak Academy of Agricultural Sciences. Vestnik CSAZV 8 no.8/9:496-531 '61.

1. Dopisujici clen Ceskoslovenske akademie zemedelskych ved (for Stejskal, Plesnik, Hruska, Svoboda, Najmr, Preininger, Hauner, Benda, Krajcovic, Krblich, Dvoracek, Foltyn, Vyskot, Kosil) 2. Clen redakcni rady Vestniku Ceskoslovenske akademie zemedelskych ved (for Plesnik, Preininger, Foltyn, Vyskot) 3. Reditel Vyzkumneho ustavu zivocisne vyrobny Ceskoslovenske akademie zemedelskych ved v Uhrinevsi (for Dvoracek) 4. Reditel Ustavu pro vedeckou soustavu hospodareni Ceskoslovenske akademie zemedelskych ved v Praze (for Benda)

(Czechoslovakia--Agriculture)

TUMOVA, B.; FEDOVA, D.; PLESNIK, J.

Incidence and spread of a new variant of the type B influenza virus among the population of Czechoslovakia. III. Incidence of type B₁ strains in 1960 and the epidemic of 1961. J. hyg, epidem. 7 no.2: 151-164 '63.

1. Czechoslovak Influenza Centre, Institute of Epidemiology and Microbiology, Prague; Regional Station of Hygiene and Epidemiology, Ostrava.

(INFLUENZA VIRUSES)

(ANTIBODIES)

(EPIDEMIOLOGY)

summed
and enters the
ted into gaseous N₂ (4) -
to the condenser (A) where it is
is collected (2) whilst the remainder runs
Card 1/4

Use of a condenser in the ...

32580
P/014/62/041/001/003/004
D204/D304

to lower the temperature to $\sim 196^{\circ}\text{K}$. This is the essential feature of the process. Liquid at the base of (B) is kept boiling by the input air and separates into a warmer portion which rises and is further rectified, and a colder portion (3) which escapes to the atmosphere via (C). Construction and operation of the equipment is illustrated and described in some detail. The plant requires 6 hours to start up and completes a working cycle in 80 - 120 hours. Full efficiency is reached after 1 hour of normal operation. The following parameters are quoted: Operating pressure = 760 mm Hg, surrounding temperature = 20°C , relative humidity of air = 80 %, temperature of the cooling water = 15°C and its consumption is $1\text{ m}^3/\text{hr}$. by the cooling unit and 10 l/hr . by the column heater. The consumption of electrical power is $1.5\text{ kwh/kg liq. N}_2$ and the total weight is 320 kg, including a 70 kg column. Once in motion the plant is fully automatic. Further improvements of and new uses for the unit are anticipated, leading eventually to the production of liquid oxygen at a low cost. There are 7 figures and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: M. Davies, "The Physical

Card 2/4

PAWLIKOWSKI, Stefan; PLESNIAK, Stefan

Condenser applied to the rectification of air. Przem chem 41 no.1:
27-30 Ja '62.

1. Politechnika Slaska

PLESNIK, Stefan; KOTOUCEK, Jan

Contribution to the problem of properties of some anion dye solutions. Pt.2. Sbor VŠCHT Pardubice no.1:161-172 '64.

1. Chair of Textile Chemical Technology of the Higher School of Chemical Technology, Pardubice. Submitted June 17, 1963.

PLESNIK, Stefan; CHOUR, Zdenek

Contribution to the problem of properties of some anion dye solutions. Pt.1. Sbor VCHT Pardubice no.1:143-160 1964.

1. Chair of Textile Chemical Technology of the Higher School of Chemical Technology, Pardubice. Submitted June 17, 1963.

PLESNIK, Stefan

Contribution to the problem of preparing pure anion dyes, and their analysis. Sbor VSOChT Pardubice no.1:123-141 '64.

1. Chair of Textile Chemical Technology of the Higher School of Chemical Technology, Pardubice. Submitted June 17, 1963.

PAWLIKOWSKI, Stefan; PLESNIAK, Stefan

New devices for the liquefaction of air. Przem chem 40 no.9:488-491
S '61.

1. Politechnika Slaska, Gliwice.

PAWLIKOWSKI, Stefan; PLESNIAK, Stefan

New equipment for the liquefaction of air. Przem chem 40 no.9:488-491
S '61.

1. Politechnika Slaska [Gliwice].

PAWLIKOWSKI, Stefan; PLESNIAK, Stefan

Condenser in the rectification of air. Przer. chem. 41, no. 1, 27-30
Ja '62.

1. Politechnika Slaska, Gliwice.

PLESNIK, Jan

Meeting of the Scientific Council of the Animal Production
Research Institute in Nitra. Vest ust zemedel 10 no.6/7:242-
243 '63.

1. Glen korespondent Ceskoslovenske akademie ved.

PLACNIK, Jan. prof. Dr.

The of crossbreeding in the improvement of quality in cycles
of so-called combined breeding (best not zamedel. 12. 1933-1935)
193-1965.

1. Corresponding member of the Czechoslovak Academy of Sciences.
Director of the Research Institute of Animal Production, Nitra

PLESNICAR, Stojan, dr. med. univ., radioterapevt.

Bases of the X-ray therapy with radioactive cobalt
(Co-60). Elektr vest 30 no. 8/9:204-207 '62/'63.

1. Oncological Institute, Ljubljana.

PERME, L.; CERNIGOJ, B.; DOBEIC, J.; PLESNICAR, S.; VADNAL, A.; POKANI, P.;
SZAVITS-NCSSAN, O.; ZAJC, B.; LEONARDIS, C.; POKANI, A.; SANCIC, P.;
KERSIC, N.; STANIC, P.; VIRANT, S.; GOSAR, P.; ATON, P.; VIDAL, A.;
KRALJ, A.

New books and periodicals. Electr vest. 31 no.3/5: 113-120. Ser-17
'64

L 47599-65

ACCESSION NR: AR5000575

realization exists which induces this hue. On the above basis, a method of constructing a system of cycles with their bichromatic hues is described.

SUB COPY: DP

ENCL: 00

Card 2/2

L 57599-45 INT(d)/EHP(1) Po-4/Pg-4/Pae-2/Pk-4/Pl-4 LJP(c) EC
ACCESSION NR: AR5000575 S/0271/64/000/009/B003/B004
681.142.1

43
0

SOURCE: Ref. zh. Avtomat. telemekh. i vychisl. tekhn. Sv. t., Abs. 9B22

AUTHOR: Plesnerich, G. S.

TITLE: Arrangement of a graph in a plane

CITED SOURCE: Sb. Vychisl. sistemy. Vyp. 6 Novosibirsk, 1963, 45-53

TOPIC TAGS: graph, signal flow graph, computer, computer graph

TRANSLATION: It is noted that the following two problems have arisen in the automatic designing of computers: (1) Find an effective algorithm applicable to any graph Γ and determining whether or not the graph is planar; (2) Find an effective algorithm applicable to any planar graph Γ and determining the cyclic orders induced by a certain planar realization of the graph Γ . It is proven that, in solving the above problems, it is sufficient to find the graphs which possess these properties: (a) the graph has no coupling points; (b) the degree of each node is not less than 3. Two lemmas are proven: (1) If the graph Γ is planar, then for any of its cycles M , the graph $R(M)$ will be bichromatic; (2) If the graph Γ is planar, then for any bichromatic hue of the graph $R(M)$, a planar

Card 1/2

L 42099-65

ACCESSION NR: AT5005633

ASSOCIATION: Institut matematiki SO AN SSSR (Institute of Mathematics SO AN SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: DF, NA

NR REF SOV: 000

OTHER: 001

Card 2/2 CC

L 42099-65

ACCESSION NR: AT5005633

8/3134/63/000/006/0045/0053

AUTHOR: Fleischer, G. S.

10
B+

TITLE: The placement of a graph on a plane

SOURCE: AN SSSR, Sibirskoye otdeleniye. Institut matematiki. Vychislitel'nyye sistemy, no. 6, 1963, 45-53

TOPIC TAGS: graph theory, planar graph, bichromatic graph, computer design

ABSTRACT: The article deals with two problems in graph theory which are of use in the automatization of computer design. The first is to find an effective algorithm which can be applied to any graph to determine whether the graph is planar or not. The second problem is to find an effective algorithm applicable to any graph and determining the cyclic sequences induced by some planar realization of a given graph. Several theorems are proved concerning properties of planar graphs, with special attention to bichromaticity, and the number of edges of a planar graph is estimated as a function of the number of vertices. Orig. art. has: 3 figures and 14 formulas.

Card 1/2

ACC NR: AP7001540

expectation of the computation time) is determined by the formula $\varepsilon_n = \sum_{\xi, \sigma} p(\xi) p(\sigma)$, where the summation occurs over all n -words ξ and over all $(n + 1)$ -words σ . The computational aspects of this summation are substantiated by theorem, and the concepts are compared with the observations of J. von Neumann. This paper was presented by Academician V. M. Glushkov on 24 January 1966. Orig. art. has: 10 formulas.

SUB CODE: 09, 12/ SUBM DATE: 14Dec65/ ORIG REF: 001/ OTH REF: 002

Card 2/2

SOURCE CODE: UR/0020/66/171/003/0537/0540

ACC NR: AP7001540

AUTHOR: Plesnevich, G. S.

ORG: Institute of Mathematics, Siberian Department, Academy of Sciences SSSR
(Institut matematiki Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Estimations of the mean time of computation on one-dimensional one-sided
iterative systems

SOURCE: AN SSSR. Doklady, v. 171, no. 3, 1966, 537-540

TOPIC TAGS: cybernetics, computer, logic circuit, system analysis, Markov process

ABSTRACT: A study is made of one-dimensional one-sided iterative systems with combination cells and with delays in side channels (F. C. Hennie. Iterative Arrays of Logical Circuits, 1961). An arbitrary system of this type is specified by the selection $\mathcal{Y} = \langle X, Y, S, s^*, f, g \rangle$, where X and Y are the input and output alphabets of the system; S is the alphabet of supplementary signals; s^* is the limiting signal ($s^* \in S$); $f: X \times S \rightarrow S$ - a function of the transformation of the supplementary signals, and $g: X \times S \rightarrow Y$ is the output function. The state of the n -circuit is specified, at a given time, by the states of all supplementary channels, including the states of the channel to the first and last cells of the circuit. If ξ is an input n -word $\xi = x_1 x_2 \dots x_n$ and the state of the circuit at a given moment is $\sigma = s_0 s_1 \dots s_n$, then the mean time of computation on the circuit E_n (mathematical

UDC: 519.95

Card 1/2

L 25252-65

ACCESSION NR: AR5000992

0

2) if $x \notin S$, then $A(x \beta^{f(x)}) = 0$

3) if $f(x) > 0$ and $0 \leq k < f$ then $A(x \beta^k) = \beta$.

Here $A(x)$ is the last letter of the output word upon feeding into the input A words $x; \beta^k = \beta \dots \beta$ (k times). The name class of events connected with the family \mathcal{U} is applied to the class of all events f -representable in \mathcal{U} for any functions f of the given form. (For $f(x) = 0$ the f -representability is equivalent to representability in the usual sense). Two families of automata are discussed: the family of all finite automata, and the family of automata corresponding to one-dimensional, one-sided, stable iterative systems in the Khenna sense (RZhMat., 1963, 12V438). The class of all regular events is connected with the first family, that of all recursive events with the second family. V. Marty*nyuk

SUB CODE: MA, DP

ENCL: 00

Card 2/2

L 25252-65 BWT(d) LJP(e)

ACCESSION NR: AR5000992

S/0044/64/000/009/V022/V023

SOURCE: Ref. zh. Matematika. Abs. 9V130

AUTHOR: Plesnevich, G. S.

7
B

TITLE: Events connected with a family of automatons, Report I.

CITED SOURCE: Sb. Yvchisl. sistemy, Vyp. 8. Novosibirsk, 1963, 44-64

TOPIC TAGS: automaton family, finite automaton, one dimensional iterative system, computer alphabet

TRANSLATION: Let \mathcal{A} be an arbitrary family of automatons and f any function determined by a set of finite words in the alphabet $\Sigma = \{0, 1\}$, assuming any integer non-negative values. The event S in the alphabet $\Pi = \{0, 1, \beta\}$ is called f -representable in the family \mathcal{A} , if there exists an automaton with an input/output alphabet Π such that for any word x in the alphabet Σ

1) if $x \in S$, then $A(x, \beta^{(n)}) = 1$

Card 1/2

VIZING, V.G.; POLANOVICH, G.M.

On the problem of coloring of the vertices of a graph. 31b. Mat.
Sov. Math. Dokl. 1964, 10, 1841.

МИСЕНЕК, Абрам АYZEKHИЛОВИЧ; МИКHAЮ, Б.К., ред.

[spectral theory of linear operators] спектральная
теория линейных операторов. Москва, Наука, 1969.
624 p. (MIRA 1971)

MIKUSINSKI, JAN; PLESNER, A.I. (translator); KUROSH, A.G., professor,
redakter; GRIBOVA, M.P., tekhnicheskii redaktor.

[Operational calculus. Translated from the Polish] Operatsionnoe
ischislenie. Perevod s pol'skogo A.I.Plesnera. Moskva, Izd-vo
inostrannoi lit-ry, 1956. 360 p. (MLRA 9:5)
(Calculus, Operational)

PROCEEDINGS

USSR/Mathematics - Group Theory

1 Jul 53

"Semi-ordered Measure of Sets, Measurable Functions and Certain Abstract Integrals," V. I. Sobolev, Voronezh State U

DAN SSSR, Vol 91, No 1, pp 23-26

Constructs the measure of linear point sets, the values of which (measure) belong to a semi-ordered ring, and studies the functions measurable in the sense of this measure. Introduces a certain integral of the Lebesgue-Stieltjes type. Generalizes theory of operator measure and operator integrals,

266T80

which was developed by A. I. Plesner (Usp Matemat Nauk, Vol 1, No 11, 71 (1946)), together with V. A. Rokhlin. Presented by Acad A. N. Kolmogorov 4 May 53.

PLESNER, A.

Visnie, A. The structure of the conjugate graph of a self-adjoint operator. Doklady Akad. Nauk SSSR (N.S.) 66, 337-360 (1949). (Russian)

Let A be a linear transformation defined in a certain subset D of a unitary space H , satisfying $(Af, g) = (f, Ag)$ for all f and g in D . The pairs $[f, g^*]$ for which the inner product $(Af, g) = (f, g^*)$ for all f in D form the conjugate graph Γ_A . Let Φ_A be the set of vectors $Af - \lambda f$, Ξ_A the orthogonal complement of Φ_A in H , and T_A the set of pairs $[g, \lambda g]$, $g \in \Xi_A$. It is proved that $\Gamma_A^* = \bar{T}_A + T_A + T_A$, where \bar{T}_A is the closure of the graph of A . Also certain relations between Γ_A , Ξ_A and Ξ_A are established.

F. J. Murray (Cambridge, Mass.)

Source: Mathematical Reviews,

Vol. 10, No. 10

SMW
[Signature]

Plesner, A. I.

Plesner, A. I. Fundamental ideas of the spectral theory of Hermitian operators. *Voprosy Matem. Nauk (N.S.)* (11), no. 1, 97-216 (1946). (Russian)
This is a purely expository paper, apparently written for the orientation of the reader who desires to study the immediately preceding paper [see the preceding review] without having ready access to its first part.

M. D. Stone

(sm)

Source: *Mathematical Reviews*, 1948, Vol 9, No 1

and $w_A(\beta)$ is equal to $\min_{\beta \in \mathcal{B}_A} w_A(\beta)$, where $\{\mathcal{B}_A\}$ is the set of β -components, other than 0, in the subalgebras in question. The function w_A is then seen to be a characteristic unitary-invariant of A ; in fact, $w_A(B) = w_B(A)$ for all B if and only if A and B are unitary-equivalent. To define generalized functions of A , it is supposed that a complex-valued function $\Phi(\lambda, \rho)$ is defined for $-\infty < \lambda < +\infty$ and $\rho \in \mathcal{R}$ when $w_A(\rho) > 0$, with the properties: $\Phi(\lambda, \rho)$ is a function of λ measurable with respect to ρ ; if $\lambda \rightarrow \lambda'$ then $\Phi(\lambda, \rho) \rightarrow \Phi(\lambda', \rho)$ except on a set of ρ -measure zero. Thus there exists a unique closed linear operator B which is related to A in the following manner: if f is any vector and $M(f)$ the closed linear manifold generated by the vectors $E(\lambda)f$, $-\infty < \lambda < +\infty$, then $M(f)$ reduces both A and B , their respective components A_f and B_f in $M(f)$ being connected by the equation $B_f = \Phi(A_f, \rho)$, where $\rho(\lambda) = (E(\lambda)f, f)$. This operator is denoted by $B = \Phi(A)$. A necessary and sufficient condition that a closed linear operator be expressible in the form $\Phi(A)$ is that it commute with every bounded linear operator which commutes with A . M. H. Stone (Chicago, Ill.).

Source: Mathematical Reviews, 1948, Vol. 9, No. 3

SMW

Pliesner, A. I.

Pliesner, A. I., and Rakhin, V. A. Spectral theory of linear operators. *Dokl. Akad. Nauk (N.S.)* 1(11), no. 1, 149-151 (1946). (Russian)

[Part I, by Pliesner alone, appeared in the same journal 9, 3-123 (1943); *Math. Rev.* 5, 210.] Part I) comprises §§14-29, as follows: 14. Operator-valued measure. 15. Integrability with respect to spectral measure. 16. Functions of Hermitian operators. 17. Closed operators permutable with Hermitian operators. 18. Functions of permutable Hermitian operators. 19. Spectral analysis of unitary operators. 20. Closed operators. 21. Spectral analysis of normal operators. 22. Hellinger types. 23. Cyclic operators. 24. Orthogonal sums of Hermitian operators with pairwise independent maximal types. 25. Operators with simple spectra. 26. Multiple spectra. 27. The unitary invariants of Hermitian operators. 28. Generalized functions of a Hermitian operator. 29. The characterization of the functions of a Hermitian operator. There is an appendix which treats the Lebesgue-Stieltjes integral. (This is a polished presentation of more or less standard material, so arranged as to include the case of nonseparable complex Euclidean spaces.)

The discussion of unitary invariants in §§22-28, while basically the same as the known treatments (beginning with the original ones of Hellinger and Hahn), applies to the Source: *Mathematical Reviews*. 1948, Vol. 9, p. 7

nonseparable case and is made particularly clear by systematic use of lattice-theoretic concepts. The family of finite mass distributions on the infinite line, $-\infty < \lambda < \infty$, (or, what is the same thing, the family of the corresponding cumulative distribution functions F) falls into equivalence classes. If two distributions are regarded as equivalent whenever each has a density function with respect to the other. The collection R of all such classes (called Hellinger types) is partially ordered by putting $\rho \leq \sigma$ whenever ρ has a density function with respect to σ ; and, indeed, R is found to be a countably-additive generalized Boolean algebra in which the relations $\rho_1 \neq 0, \rho_1 \cap \rho_2 = 0$ for $\alpha \neq \beta, \beta \in \bar{\alpha}$ imply that the totality of elements ρ_α is countable. Now, if A is a Hermitian (i.e., self-adjoint) operator in a fixed complex Euclidean space and $E(\lambda)$ is its resolution of the identity, a single vector x , or, more generally, a set of vectors $\{f_\alpha\}$ is said to be of type $\rho \neq 0$ (with respect to A) when $(E(\alpha)f_\alpha, E(\lambda)f_\alpha) = \int_{\alpha}^{\lambda} \rho(\lambda)$ for all α, β, λ . The maximal systems of type ρ all have the same cardinal number, called the multiplicity of ρ , which is a function $m_A(\rho)$ of the Hellinger type ρ alone. By virtue of the fact that $\rho_\alpha \cap \rho_\beta = 0$ imply $m_A(\sum_{\alpha \in \beta} \rho_\alpha) = \min_{\alpha \in \beta} m_A(\rho_\alpha)$, it follows that the function m_A has a very simple structure: the algebra R is the direct sum of subalgebras on each of which m_A is constant;

PLESNER, A. I.

Zur Theorie der Konjugierten Trigonometrischen Reihen. Mittell. G. u. Ia. Ge. M.
D. Univ. Giesßen, 10 (1923), 1-36.

Ueber Konvergenz von Trigonometrischen Reihen. J. Reine u. Angew. Math., 155
(1925), 15-25.

Ueber Das Verhalten Analytischer Function Am Rande Ihren Definitionsbereich. J.
Reine u. Angew. Math., 158 (1927).

O Sopryazhenykh Trigonometricheskikh Ryadakh. Dan, 4 (1935), 235-238.

Spektral'nyy Analiz Maksimal'nykh Operatorov. Dan, 22 (1931), 225-228.

Funktsii Maksimal'nogo Operatora. Dan, 23 (1939), 327-330.

O Poluunitarnykh Operatorakh, Dan, 25 (1937), 708-710.

O Vkl'yuchenii Operatsionnogo Ischisleniya Heaviside'a V Spektral'nyuyu Teoriyu
Maksimal'nykh Operatorov. Dan, 26, (1940), 10-12.

Spektral'naya Teoriya Lineynykh Operatorov. Uspekhi Matem. , Nauk, 9 (1941), 3-125.

SO: Mathematics in the USSR, 1917-1947

edited by Kurosh, A. G.,

Markushevich, A. I.,

Rashevskiy, P. K.

Moscow-Leningrad, 1948.

ZAJICEK, Karel; PLESL, Jaroslav

Influence of spreading technology on the protective property
of prime coats. Stroj vyr 12 no.4:264-268 Ap'64.

I. G.V. Akimov State Research Institute of Protection of
Material.

PLESINGER, A.M.

Sixtieth birthday of Professor Josef Koritta. Slevarenatvi
11 no.11:490 N'63.

PLESINGER, A.

Expanded perlite, a new insulation material. Stavivo A1 no.9:
331-333 S'63.

1. Keramicke zavody, n.p., Kosice.

L 65023-65

ACCESSION NR: AT50022063

5

mer months and then a gradual decrease to December. The minimum occurs in December and the maximum between May and July. Deviations from the mean value are represented on maps in the original article for all three years of the IGY and ICG. Anomalistic regions occur each year at different places. Orig. art. has: 12 tables and 7 figures [EG]

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00

ENCL: 00

SUB CODE: ESAA

NO REF NOV: 004

OTHER: 000

ATD PRESS: 4082

Card

2/2-1766

L 65023-65 EWT(1)/EWT(v) GW UR/2531/65/000/179/0088/0097
ACCESSION NR: AT50022863

AUTHOR: Fleshkova, T. T.

TITLE: Scattered radiation and its anomalies in the USSR during the IGY and IGC

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 179, 1965. Teplovoy balans (Heat balance), 88-97

TOPIC TAGS: scattered radiation, shortwave radiation, total radiation, anomalistic region 12,55,44

ABSTRACT: Yearly values of scattered radiation in the Soviet Union vary from 15 to 55 kcal/cm². The minimum yearly radiation takes place in the northern regions and Central Asia, and the maximum in the Transcarpathian regions and the Far East. The mean value of scattered radiation was determined from observation data obtained during ten years (1952-1961), and the scattered radiation observed during the IGY and IGC were compared with this mean value. Also the downwelling shortwave radiation was taken into consideration. A table in the original article contains the mean yearly values of scattered radiation and its percentage of the total radiation. The amount of scattered radiation varies from year to year. Seasonal changes of the scattered radiation are characterized by a gradual increase from January to the sum-

S/078/62/007/012/006/022
B144/B180

AUTHORS: Grizik, A. A., Plyushchev, V. Ye., Pleskova, I. A.

TITLE: Synthesis and some properties of potassium dizirconate

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 12, 1962, 2702-2708

TEXT: The formation and properties of $K_2O \cdot ZrO_2$ (I) were studied using the starting materials and procedure described in previous papers (Zh. neorgan. khimii, 7, 1962, 2095, 2086 and 1054). Separation of I from the trizirconate which forms equally in the $K_2O - ZrO_2$ system was achieved by exploiting their different behaviour in hydrolysis. At room temperature I is hardly hydrolyzed at all, being almost completely so at $100^\circ C$. Pure I was obtained for the first time from compounds with a molecular $K_2O : ZrO_2$ ratio of 1.5 : 1 and a large excess of free K_2O at $1000 - 1100^\circ C$ by sintering them for 1 hr at $1000^\circ C$, removing the free K_2O with methanol and acetone, and drying in air at $50 - 70^\circ C$. $K_2O \cdot ZrO_2$ forms white oblong

Card 1/2

GRIZIK, A.A.; PLYUSHCHEV, V.Ye.; PLESKOVA, I.A.

Synthesis and some properties of potassium dizirconate. Zhur.
neorg.khim. 7 no.12:2702-2708 D '62. (MIRA 16:2)
(Potassium zirconate)

GRUBEROVA, J.; KOPERDANOVA, E.; PLESKOVA, A.

Toxicological properties of some mixtures of dithiophosphoric acid esters. Prac. lek. 13 no.8/9:410-414 N '61.

1. Ustav hygieny prace a chorob z povolania v Bratislave, riaditel MUDr. I. Klucik.

(INSECTICIDES toxicol)

TRNOVEC, T.; BENO, M.; ZBORIL, V.; RUSEK, V.; PLESKOVA, A.;
KLUVANEK, P.

Effect of intensification of the absorptive processes of bone
tissue by vitamin A on the uptake of radiocerium. Bratisl. lek.
listy 43 Pt. 1 no.9:529-535 '63.

1. Ustav hygieny prace a chorob z povolania v Bratislave,
riaditel MUDr. I. Klucik.

(CERIUM ISOTOPES) (VITAMIN A)
(BONE AND BONES) (METABOLISM)
(FEMUR) (RATS)

TRNOVEC, T.; BENO, M.; PLESKOVA, A.; ROSEK, V.; TATANA, M.

Effect of diethylaminoethylpentanoic acid (DEPA) on radiorecep-
tion administered intravenously to rats. Bratisl. lek. listy 44
no.4:201-204 31 Ag '64.

1. Ústav hygieny práce a chorob z povolání v Bratislave, (řídí-
tel prof. MUDr. M. Rosol).

TRNOVEC, Tomas; BENO, Milan; PLESKOVA, Anna; HANTABAL, Eugen; RUSEK, Vlastimil

Metabolism of radiocerium administered intratracheally in white
rats. Prac. lek. 16 no.5:197-202 J1 '64.

1. Ustav hygieny prace a chorob z povolania v Bratislave (riaditel
prof. dr. M. Nosal).

HLADKA, Anna; ŠEBEL, Václav; ČERNÝ, Karel

Determination of ethylenediaminetetraacetic acid, diethylenetriaminepentaacetic acid and meso-2,2'-diaminobisacetateacetic acid in the blood plasma. *Prac. léc. 16* no. 12 (1967) 101-103.

1. Ústav histery práce a zdraví v Bratřích
(ředitel prof. dr. M. Hrubá).

TRNOVEC, T.; BENO, M.; PLESKOVA, A.; VLADAR, M.

Accelerated excretion of intratracheally administered radio-cerium by means of diethylenetriamine pentaacetic acid. Cesk. hyg. 10 no.7:385-392 Ag '65.

1. Vyskumny ustav hygieny prace a chorob z povolania, Bratislava.

5

CZECHOSLOVAKIA

TRNOVEC, T; BENO, M; ZBORIL, V; RUSEK, V; PLESKOVA, A;
KLUVANEK, P.

Institute of Industrial Hygiene and Occupational Disease
(Ustav hygieny prace a chorob z povolania), Bratislava
(for all)

Bratislava, Bratislavske lekarske listy, No 9, 1963, pp 529-
533

"The Effect of Intensification by Vitamin A of Resorption
Processes in the Bone Tissue on Radioactive Cerium
Fixation."

COUNTRY : Czechoslovakia
 CATEGORY :
 ABS. JOUR. : RZKhin., No. 5 1960, No. 1-563
 AUTHOR :
 INST. :
 TITLE :

ORIG. PUB. :

ABSTRACT :

tions twice a year and otorhinolaryngologic examinations every month), sanitary educational work, the use of protective ointments (zinc ointment, Peru balsam, mineral and vegetable oils, cod liver oil, vitamin A, paraffin for the nose, 5 parts paraffin and 1 part lanolin with a small amount of puerol added for the nose after work). Contraindications for work with Al₂O₃: atrophic rhinitis, deformation of the nasal cartilage, irritation of the nostrils, chronic laryngitis, tuberculosis,

REF: 3/4

CLASS: *SECRET*
ABSTRACT

The new material used in the process of
artificially (and/or) naturally (and/or) (and/or)
(and/or, etc.). The clinical study of (and/or)
has revealed perforation of the nasal cartilage in
13 cases, ulcers and abscesses of the nasal mucosa
are in 25 cases, and mucous surface damage to the
mucous membrane of the nose, hypoxemia, pharyngitis
in 21 cases; 10% of the cases show laryngitis,
bronchitis, emphysema, and bronchial asthma. It
has been established that perforation of the nasal

DATE: 1/4

NO. 1

NO. 200

NO. 1000

cartilage occurs, and points after the start of
war. The clinical picture of the disease is de-
scribed (4 stages). Recommendations: encyclopaedia-
tion and reorganization of production processes,
installation of an effective ventilating system,
installation of fresh exhaust gases, and removal
of respirators in the workers, initial airing of
showers, provision of dressing rooms, installation
of medical power personal selection, and imple-
tion of periodic medical checkups (control exami-

DATE: 2/4

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CZECHOSLOVAKIA

A. BLANKOVA [Institute of Work Hygiene and Occupational Medicine (Ústav
hygieny práce a chorob z povolania), Bratislava.]

"Development and Activity of the Section on Radiation Hygiene."

Prague, *Pracovní Lékarství*, Vol 15, No 1, Jan 1969, p 22.

Abstract: This section of the institute was formed in 1958 and consists now of a division of health physics and one of radiobiology. The first studied among other projects mainly stray radiation attending medical diagnosis and therapy; dosimetry of Y^{90} and Sr^{90} . The second division was concerned with radiochemical analyses of Sr, Y, Ce, Cs, I and Ba in excreta, contamination and decontamination of water, and complexing agents. Both divisions worked together on nuclear power stations and nuclear reactor installations.

PLESKOVA, A.; BENCZE, K.

Toxic properties of pentachlorophenol. Pracovní. lek. 11 no. 7:
348-354 S ' 59.

1. Ustav hygieny prace a chorob z povolania v Bratislave, prednosta
MUDr. I. Klucik.
(PHENOLIS toxicol.)

TRNOVEC, T.; BENO, M.; ZBORIL, V.; PLESKOVA, A.; RUSEK, V.; MINARIK, F.

Effect of parathyroid hormone on radiocerium uptake by
bone tissue. Bratisl. lek. listy 44 no.1:24-29 '64.

1. Ustav hygieny prace a chorob z povolania v Bratislave;
riaditel: prof. MUDr. M.Nosal.

*

FLESKOVA, A.; BENO, M.; TRNOVEC, T.; VLADAR, M.

Effect of the carrier on pulmonary retention of radiocerium.
Prac. lek. 7 no.8:350-353 6 65.

1. Vyskumny ustav hygieny prace a chorob z povolania v Bratislave (riaditel - prof. dr. M. Nosal).

CZECHOSLOVAKIA / Chemical Technology. Chemical Prod- H-6
ucts and Their Application. Safety
and Estimation.

Abs Jour: Ref Star-Tshimlya, No 23, 1958, 78153.

Author : Beneze, K., Ilasova, A.
Inst : Not given.
Title : Reaction of Pentachlorophenol with 4-aminoanti-
pyrino.

Orig Pub: Chem. zvesti, 1957, 11, No 10, 641-642.

Abstract: The mechanism of the reaction of pentachlorophen-
ol (I) with 4-aminoantipyrino and the micro method
of determination of I in biological material are
described. Absorption spectra of the formed anti-
pyrino dye (blue color) as well as calibrated
curves of I are presented. Bibliography with 12
titles. -- T. Brzhevska.

Card 1/1

PLUMBOVA, A.; TRNOVA, T.; B. H. J. P.

Study of carder-tres 100. By 13 idw. (1970) (1970) (1970)
Beatisl. lex. listy 44 no. 10770-10771 (1970)

1. Ustav hygieny podle z. 86/1963 z. 1. (1963)
(státní - pr. F. H. J. P. H. J. P.)

BIRINTSEVA, T.P.; PLESKOV, Yu.V.

Differential capacity and the charging curves on a gallium
arsenide electrode. Izv. AN SSSR Ser. Khim. no.2:251-257 '65.
(MIRA 18:2)

1. Institut elektrokhemii AN SSSR.

L 48968-65

ACCESSION NR: AP5007746

cation polarization curves. The degree of oxidation of the germanium surface changes depending on the potential between two boundary values which differ according to the filling of the surface with oxygen in one monolayer. Two forms of adsorbed oxygen are found on the germanium surface; a hypothesis is given as to the kinetics of their reduction. Upon removal of the monolayer of oxygen the potential jump at the phase interface changes by 0.5-0.6 v for a constant space charge. The potential jump is connected with the setting of oxygen on the surface due mainly to the polar nature of the Ge-O bonds. The removal of the adsorbed oxygen leads to an increase in the density of the fast surface electron states at the interface of the germanium and the solution. "The author extends his gratitude to B. N. Kabanov, V. A. Tyagay, and R. M. Lazorenko-Manevich for participating in a discussion of the experimental results." Orig. art. has: 6 figures, 1 equation.

ASSOCIATION: Institut elektrokhemii Akademii nauk SSSR (Institute of Electrical Chemistry, Academy of Sciences SSSR)

SUBMITTED: 19Jun64

ENCL: 00

SUB CODE: GC, IC

NO REF SOVI: 009

OTHER: 012

Cord 2/2

L 48968-65 EWT(m)/EWG(m)/? RWK

6/0364/65/001/001/0004/0011

ACCESSION NR: AP5007746

AUTHOR: Pleskov, Yu. V.

TITLE: Effect of the adsorption of oxygen on the potential jump components at the germanium-hydrofluoric acid interface

SOURCE: Elektrokhimiya, v. 1, no. 1, 1965, 4-11

TOPIC TAGS: adsorption, oxygen, germanium, hydrofluoric acid, space charge

ABSTRACT: The potential jump at the interface of a semiconductor and a concentrated solution of electrolyte results from the potential drop in the area of the space charge in the semiconductor and from the interphase potential jump. In the case of a germanium electrode this second component of the total potential jump has a noticeable magnitude. Its value depends on the pH of the solution, the electrode potential, and the crystallographic orientation of the surface and is changed by adsorption. The correlation between the interphase potential jump and the amount of oxygen adsorbed on the germanium surface was studied. The electrolyte was a 48% solution of hydrofluoric acid in which germanium oxide is easily dissolved. The amount of oxygen adsorbed on the surface of the electrode was determined from the

Card 1/2

L 52233-65

ACCESSION NR: AP5009942

ENCLOSURE: 02

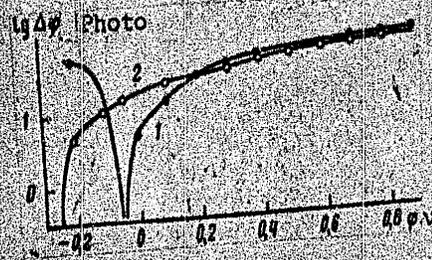


Fig. 2. Effect of copper on the photoelectric potential of n-germanium.
Concentration of copper in solution: 1-0, 2-10⁻⁵ (g·equiv/l)

Card 4/4 7/16

1 52233-65

ACCESSION NR: AP5009942

ENCLOSURE: 01

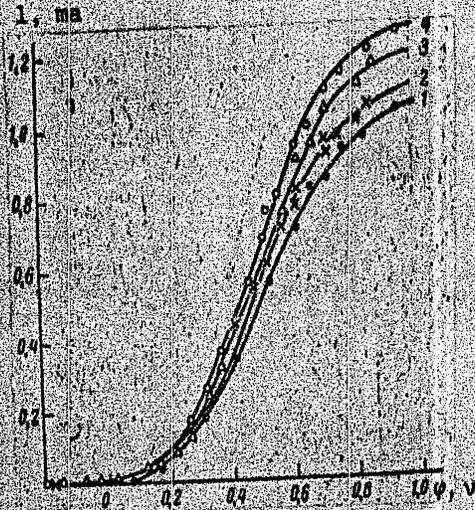


Fig. 1. Effect of copper on the anodic dissolution current of n-germanium. Concentration of copper in solution is (g-equiv/L): 1-0; 2-10⁻⁶; 3-10⁻⁵; 4-10⁻⁴

Card 3/4

L 52233-65

ACCESSION NR: AP5009942

3

germanium-electrolyte interface. The principal cause for the change in interface potential drop is the variation in the oxidation of the germanium surface or variation in the nature of the germanium-oxygen bond. The increase in the anodic dissolution current of *n*-germanium when copper and gold are added to the solution is caused by an increase in the surface recombination rate. The increase in anodic current upon the addition of iodide is apparently associated with anodic oxidation of the iodide ions at the electrode. Measurements of the photoelectric potential of the germanium electrode may be used for studying the kinetics of the adsorption of impurities from solutions. "The authors wish to express their gratitude to V. A. Tyagay for the valuable remarks during discussions of the experimental data and to N. A. Balashova for her help in carrying out the radiochemical measurements." Orig. art. has: 5 figures.

ASSOCIATION: Institut elektokhimi. Akademii nauk SSSR (Electrochemistry Institute, Academy of Sciences SSSR)

SUBMITTED: 27Apr64

ENCL: 02

SUB CODE: EM, GC

NO REF SOV: 007

OTHER: 007

Card 2/4

L 52233-65 EWT(m)/EWG(m)/EWP(b)/T/EWP(t) IJF(e) HVB/JD

ACCESSION NR: AP5004942

UR/0364/65/001/002/0194/0200

AUTHOR: Yelatskiy, V. V.; Plaskov, Yu. V.

24
21
E

TITLE: Effect of adsorption on potential distribution at a germanium-electrolyte interface

SOURCE: Elektrokhimiya, v. 1, no. 2, 1965, 194-200

TOPIC TAGS: germanium, adsorption, electrochemical process

ABSTRACT: The effect of adsorption on potential distribution at the germanium-aqueous solution interface was studied. Using the photoelectric potential method in conjunction with direct measurement of the adsorbed amount of material it was shown that during adsorption of gold, copper and iodine on the germanium electrode a significant change in the interface potential drop takes place. The adsorbed amount of material was determined by means of radioactive tracers. During anodic polarization of the electrode a partial desorption of copper takes place, which is accompanied by a change in the photoelectric potential. The effect which the addition of copper has on the anodic dissolution and photoelectric potential of n-type germanium is shown in figs. 1 and 2 of the Enclosure. Change in the photoelectric potential due to adsorption indicates redistribution of the potential at the

Card 1/4

PLESKOV, Yu.V.

Effect of oxygen adsorption on the concentration of the central point
at the germanium - hydrogenic semiconductor, *ibid.* (1965) p. 111
4-11 Ja '65. (MIRA 14-5)

1. Institut elektrotehniki AN SSSR.

TYAGAY, V.A.; PLESKOV, Yu.V.

Apparatus for electrochemical pulse measurements. *Zhur. Fiz. Khim.* 38
no.8:2111-2113 Ag '64. (MIRA 18:1)

1. Institut elektrokhemii AN SSSR.

YULEKIN V.V., PLEKHOV, G.M.

Effect of early life conditions on the development of the nervous system
in the rat. *Neurophysiology* 1968, 10, 100-105.

1. The effect of early life conditions on the development of the nervous system.

(M. P. P. P.)

II 61328-65
ACCESSION NR: AT5020455

σ , μmho 0.3 0.2 0.1 0 -0.1 -0.2 -0.3 ϕ , volt

ENCLOSURE: 01

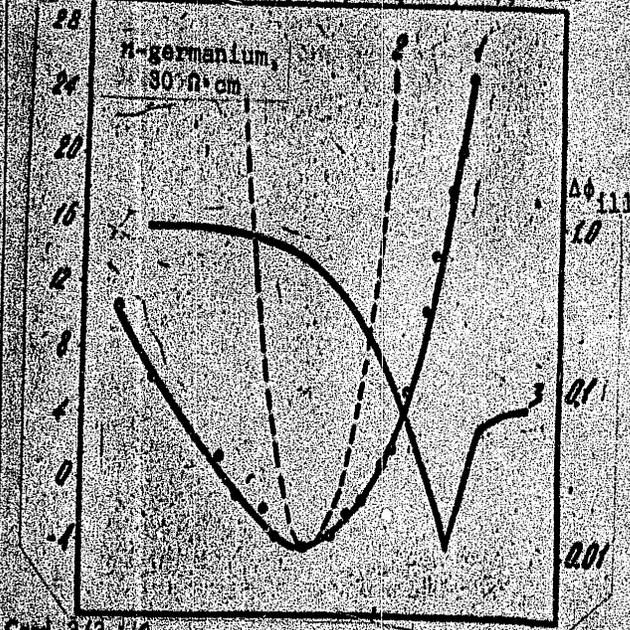


Fig. 1. 1--surface conductivity as a function of electrode potential; 2--theoretical relationship between surface conductivity and potential drop; 3--photoelectric potential as a function of electrode potential.

Card 3/3

D 64328-65

ACCESSION NR: AT5020455

9

a function of electrode potential for germanium is given in fig. 1 of the Enclosure, together with the curve for the theoretical relationship between surface conductivity and potential drop in the space charge region of a semiconductor. The experimental curve has a well defined minimum, in contrast to the case with aqueous solutions. The relationship between photoelectric potential and electrode potential (fig. 1 of the Enclosure) differs from the theoretical "photoelectric effect-surface potential" curve calculated for the case where there are no surface states. The experimental data indicate that the density of both fast and slow surface electron states is considerable (about 10^{12} cm⁻²) at the germanium-methylformamide interface. We are deeply grateful to V. A. Tyagav for help in discussion of the experimental data and to Yu. M. Povarov for supplying highly pure methylformamide." Orig. art. has: 1 figure. 44, 55

ASSOCIATION: Institut elektroniki Akademii nauk SSSR (Institute of Electronics; Academy of Sciences, SSSR)

SUBMITTED: 06Oct64

ENCL: 01

SUB CODE: SS, GC

NO REF SOV: 001

OTHER: 005

Card 2/3

L 64328-65 BWA(h)/EWT(l)/EWG(m)/EWP(D)/T/EWT(m)/EWP(t) IJP(c) AT/DS/JD/GS

ACCESSION NR: AT5020455

UR/0000/64/000/000/0110/0112

AUTHOR: Krotova, M. D.; Pleskov, Yu. V.

TITLE: Surface conductivity and the photoelectric effect at a germanium-electrolyte interface

SOURCE: Meshvuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 110-112

TOPIC TAGS: electrochemistry, electrolyte, semiconductor research, germanium, surface property, crystal surface, photoelectric effect

ABSTRACT: Surface conductivity and the pulsed photoelectric effect are measured in studies of surface states at a germanium-methylformamide interface. The choice of this solvent was dictated by the fact that there are no electrochemical reactions on the surface of the electrode within a wide range of potentials in the germanium-methylformamide system. Therefore the leakage current through the solution is insignificantly small when the conductivity of the specimen in contact with the solution is being measured (in contrast to aqueous solutions). Surface conductivity as

Card 1/3

PLESKOV, Yu.V., kand. khim. nauk

Electrochemistry of semiconductors; conference in Moscow.
Vest. AN SSSR 34 no.11:108-109 N '64. (MIRA 17:12)

L 8195-66

ACC NR: AP5025078

"Current multiplication" in anodic dissolution of germanium, electro-deposition of metals, kinetics of adsorption from solutions, and penetration of hydrogen or alkali metals into semiconductor cathodes are the electrochemical processes not yet fully understood.

The main problem of photoelectrochemistry is the mechanism of the electrochemical process caused by the photoeffect. Soviet studies are noted in the areas of photopassivation and photoactivation, photodesorption, and photocatalytic activity of the electrodes. In light of recent Soviet findings, the studies of photoelectrochemical phenomena might contribute to development of the mechanism of photosynthesis. These studies are of particular importance for the problem of direct conversion of radiation into electrical energy.

The electrochemical studies of semiconductors should be extended to polycrystalline semiconductors, e.g., oxide films on barrier-layer metals, oxide and sulfide electrodes, and to passivity of metals. Orig. art. has: 2 formulas. INTD Press: 4138-F

SUB CODE: 07, 20 / SUBM DATE: 14Mar65 / ORIG REF: 019 / OTH REF: 009

nw
Card 3/3

L 8195-66 EWT(1)/EWT(m)/EWG(m)/T/EWA(h) IJP(c)/ DS/GG/AT
ACC NR: AP5025078 SOURCE CODE: UR/0364/65/001/010/1167/1173

AUTHOR: Tyagay, V. A.; Pleskov, Yu. V. ^{44.5}

ORG: Institute of Electrochemistry, AN SSSR (Institut Elektrokhimii, AN SSSR) ^{44.5} 191

TITLE: Electrochemistry of semiconductors

SOURCE: Elektrokhiimiya, v. 1, no. 10, 1965, 1167-1173

TOPIC TAGS: ^{44.5} ^{21, 44, 55} electrochemistry, semiconductor research, electrode, semiconductor single crystal, semiconductor crystal, charge exchange, photosynthesis, direct energy conversion, crystal surface, crystallography, space charge, photochemistry, photoeffect

ABSTRACT: The state-of-the-art is presented and the most important unsolved theoretical and experimental problems of the electrochemistry of semiconductors are discussed on the basis of the latest Soviet and Western research data. About 80% of the references are Soviet.

In the author's opinion, the main areas of interest are: distribution of potential on the semiconductor-electrolyte interface, surface electronic states versus adsorption on the same interface, kinetics of the processes on semiconductor electrodes, and photoelectrochemical processes.

The presently available experimental data are discussed and the nearest research goals are outlined in each of the above areas.

Card 1/3

UDC: 541.13:621.315:592

the most important
theory of electron exchange at the

Card 2/3

YILMAZ, M., V.V.S. PATEL, and A.V.

Effect of adsorption on the surface properties of platinum
in electrolytic solution. Electrochimica Acta, no. 11, 1967, p.
1165. (M. V. S. P.)

1. Institut electrochimic RWTH. Submitted July 12, 1967.

L 25944-66

ACC NR: AM5027774

Introduction (Secs. 1--7). - - 9
Ch. I (Secs. 8--23). The system semiconductor plus electrolyte in equilibrium - - 26
Ch. II (Secs. 24--40). Kinetics of electrode reactions - - 136.
Ch. III (Secs. 41--49). Passage of sinusoidal current through a system semiconductor plus electrolyte - - 231
Ch. IV (Secs. 50--56). Corrosion of semiconductors - - 279
Ch. V (Secs. 57--61). Use of electrochemical methods for the investigation of properties and surface finishing of semiconductor material - - 305
List of reviews on the electrochemistry of semiconductors - - 335

SUB CODE: 09, 07/ SUBM DATE: 20May65/ ORIG REF: 199/ OTH REF: 380

Card 2/2 Fw

L 25944-66 EWT(m)/ETC(f)/EWG(m)/T/EWP(t) IJP(c) DS/JD

ACC NR: AM5027774

Monograph

UR/

65
B+Myamlin, Viktor Alekseyevich; Pleskov, Yuriy Viktorovich

Electrochemistry of semiconductors (Elektrokhimiya poluprovodnikov) Moscow, Izd-vo "Nauka", 1965. 337 p. illus., biblio. (At head of title: Akademiya nauk SSSR. Institut elektrokhimii) Errata slip inserted. 6000 copies printed.

TOPIC TAGS: electrochemistry, electrode, electrolytic cell, semiconducting material

PURPOSE AND COVERAGE: The book deals with the electrochemistry of semiconductors with special emphasis on the use of semiconductor electrodes, chemical reactions between conductors and electrolytes, the processes occurring when semiconductors are used in batteries or during electrolytic corrosion, and other processes where electrodes are involved. The book is limited to single-crystal semiconductor materials and does not deal with polycrystals and semiconducting oxide films. The literature in the field up to the end of 1964 is covered. The book is intended for both electrochemists and physicists and engineers specializing in surface properties of semiconductors and in the manufacture of semiconductor devices. Etching of semiconductors is also considered. Secs. 1--12, 17, 19, 24--30, 35, 37, 41--45, and 48 were written by V. A. Myamlin, while Secs. 13--16, 18, 20--23, 31--34, 36, 38--40, 46, 47, and 49--61 by YU. V. Pleskov. Authors thank YU. YA. Gurevich, A. M. Kuznetsov, R. M. Lazorenko-Manevich, and V. A. Tyagay for valuable advice and useful remarks.

TABLE OF CONTENTS [abridged]:

Foreword - - 3

Card 1/2

UDC: 537.311.33 : 541.13

2

TYAGAY, V.A.; PLESKOV, Yu.V.

Immediate objectives of the electrochemistry of semiconductors.
Elektrokhimiya 1 no.10:1167-1173 0 '65.

(MLRA 18:10)

1. Institut elektrokhemii AN SSSR.

L 38625-65
ACCESSION NR: A15008104

3

acid medium during anodic oxidation. The surface, reduced by cathodic polarization, oxidizes spontaneously in an aqueous solution. An alkaline solution of $K_3Fe(OH)_6$ can be used as an etchant for developing the boundaries of blocks in polycrystalline gallium arsenide. The authors express their deep appreciation to D. I. Leykis and V. A. Lyssay for participating in the work and evaluating the experimental results. Orig. art. has: 6 figures.

ASSOCIATION: Institut elektrokimii Akademii nauk SSSR (Institute of Electrochemistry, Academy of Sciences, SSSR)

SUBMITTED: 19Ma:63

ENCL: 00

SUB CODE: GC, EE

NO REF SOV: 003

OTHER: 002

Card 212 *fo*

L 38625-05 E/T(m)/DAG(m)/T/EMP(t)/EMP(b) IJP(s) RMH/JD/JG
ACCESSION NR: AN5008104 6/0062/65/000/002/0251/0257 29
26
B 11

AUTHOR: Brintsova, T. P.; Pleskov, Yu. V.

TITLE: Differential capacity and charging curves on a gallium arsenide electrode

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1965, 251-257

TOPIC TAGS: electrochemistry, gallium arsenide electrode, semiconductor electrode, electrode charging curve, electrode capacity, space charge, anodic oxidation

ABSTRACT: The authors measured the differential capacity of a gallium arsenide electrode in order to study the electrochemical behavior of this compound. The impedance of an n-type electrode with a resistivity of 0.0013 to 0.46 ohm-cm was investigated. The measurements were made in 1 N KOH and 1 N KOH + 0.1 M $K_3Fe(CN)_6$. The space charge at the boundary between n-type gallium arsenide and the electrolyte was shown to be formed by ionized donors (depleted layer) over a wide range of potentials. Deep donors, whose relaxation time in the specimens studied was found to be approximately 1 μ sec, participate in the formation of the space charge in addition to shallow ones. The surface of gallium arsenide in an aqueous solution carried about 1 monolayer of adsorbed oxygen. An oxide phase is formed in an

Card 1/2

L 21783-65
ACCESSION NR: AF5004336

ASSOCIATION: none

STEMITTED: 00

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: SS, GC

ATD PRESS: 3163-F

Card 4/4

L 21783-65

ACCESSION NR. AJ5004336

A. Sh. Valeyev, T. N. Grechukhina, and M. A. Chvala. The role of semiconductor oxide films in the electropolishing of metals. Diffusion and formation of oxide layers in the process of electropolishing.

V. I. Savchenko. Certain problems of the practical application of anodic etching on germanium.

A group of Moscow and Leningrad electrochemists [unnamed] reported on the chemical etching of germanium, silicon, and intermetallic compounds.

In a summary of the results of the past year's research, progress was noted in the understanding of the properties of germanium and silicon electrodes and the behavior of binary-compound semiconductor electrodes. However, a slow increase in the number of semiconductors studied was explained by the unavailability of sufficiently pure and perfect semiconductor materials. Meanwhile, the main tasks of the electrochemists ought to be the investigation of the electrochemical properties of new prospective semiconductors and the adoption of electrochemical methods in the manufacture of semiconductor devices.

Card 3/4

4

L 21783-05

ACCESSION NR: AP5004336

10

The papers dealt with the structure of the electrical double layer on the germanium semiconductor-electrolyte interface, kinetics of electrochemical reactions on semiconductor electrodes, electrochemical and chemical etching of semiconductor materials, and application of electrochemical methods to the manufacture of semiconductor devices. Listed below are the most interesting of the papers presented.

V. A. Tyagay. Kinetics of the reduction of ferricyanide ions on a cadmium sulfide electrode. The apparent value of the transfer coefficient for the electrode reaction was correlated with the potential of the plane surface of a semiconductor electrode.

P. P. Konorov, S. M. Repinskiy, and I. M. Raksha. Current-voltage characteristics of the cadmium telluride electrode (a new subject of electrochemistry).

A. Z. Fedotova and Ye. N. Paleolog. Electropolishing of germanium in alkaline solutions.

T. K. Ivanova and A. S. Lyutovich. Electropolishing of silicon in hydrofluoric acid.

Card 2/4

L 21783-65 ENG(k)/EWA(h)/EWT(1)/EWT(m)/T Feb/Pz-6 IJP(e)/ASD(m)-3/ASM(p)-2
AT

ACCESSION NR. AP5004336

5/0030/64/000/011/0102/0109

AUTHOR: Pleskov, Yu. V. (Candidate of chemical sciences)

TITLE: Conference on the electrochemistry of semiconductors

SOURCE: AN SSSR, Vestnik, no. 11, 1964, 108-109

TOPIC TAGS: semiconductor electrochemistry, conference report, germanium electrode, silicon electrode, compound semiconductor electrode, intermetallic compound, semiconductor oxide film, metal electropolishing, semiconductor etching

ABSTRACT: The step-up in research on the electrochemical behavior of semiconductors over the last ten years was reflected in the Third Conference on the Electrochemistry of Semiconductors. The Conference was held at the Moscow Institute of Electrochemistry, Academy of Sciences USSR, on 14 and 15 September 1964. A great number of scientists and engineers from 28 scientific research institutes and industrial establishments attended; 20 papers were presented.

Card 1/4

PLESKOV, Yu.V., kand. khim. nauk

Electrochemistry of semiconductors. Vest. AN SSSR. 33 no.10:
18-~~23~~0 '63. (MIRA 16:11)

L 16595-63

Pz-4 AT/RH

EWT(1)/EWT(m)/EWG(k)/BDS/EEC(b)-2 AFFTC/ASD/ESD-3/IJF(C)
S/074/63/032/004/002/002

AUTHOR: Myamlin, V. A. and Pleskov, Yu. V.

TITLE: The electrochemistry of semiconductors 7/

PERIODICAL: Uspekhi khimii, v. 32, no. 4, April 1963, 470-500

TEXT: This is an extensive summary of currently-available information on the electrochemistry of semiconductors, the study of which in the USSR was initiated by Ye. A. Yefimov and L. G. Yerusalimchik, and continued by the Institut elektrokhimii AN SSSR (Institute of Electrochemistry of the Academy of Sciences USSR) and the Fiziko-khimicheskiy institut im. L. Ya. Karpov (Physico-Chemical Institute im. L. Ya. Karpov). The authors deal with a semiconductor-electrolyte system in an equilibrium state, the kinetics of electron reactions (with delayed electrochemical stage, delayed diffusion of nonalkaline carriers, etc.) chemical corrosion, and the use of electrochemical methods for treating the surface of semiconductors for practical and experimental purposes. The physical processes studied are defined by some 60 equations and several graphs. There is a bibliography of 247 items.

ASSOCIATION: Institut elektrokhimii AN SSSR (Institute of Electrochemistry, Academy of Sciences, USSR)
Card 1/1

KROTOVA, M.D.; PLESKOV, Yu.V.

- "Investigation of the Germanium-Electrolyte Interface."

Report presented at the 14th meeting CITCE, Intl. Comm. of
Electrochemical Thermodynamics and Kinetics, Moscow, 19-25
Aug 63.

Institute of Electrochemistry, Academy of Sciences of U.S.S.R.,
Moscow.

Electrochemical behavior of gallium ...

S/020/62/143/006/022/024
B101/B110

ASSOCIATION: Institut elektrokhemii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences USSR)

PRESENTED: January 8, 1962, by A. N. Frumkin, Academician

SUBMITTED: January 5, 1962

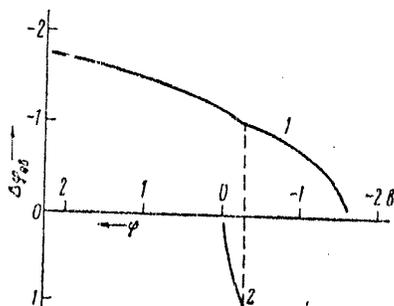


Fig. 3. Photopotential $\Delta\varphi_{ill}$ versus electrode potential, v , in 1 N NaOH. (1) n-type GaAs, $n = 5 \cdot 10^{15} \text{ cm}^{-3}$; (2) p-type GaAs, $p = 2 \cdot 10^{18} \text{ cm}^{-3}$.

Electrochemical behavior of gallium ...

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While a value of $\sim 10^{-4}$ a/cm² was obtained experimentally; (7) cathodic liberation of H₂ is equal for n-type and p-type GaAs, and follows the Tafel equation in the range of 10^{-4} and $5 \cdot 10^{-2}$ a/cm². Owing to the change in state of the GaAs surface, hysteresis of H₂ liberation occurs with decreasing current density. p-type GaAs with $p = 2 \cdot 10^{18}$ cm⁻³ showed steeper curves and higher H₂ overvoltage; (8) the different rates of anodic dissolution of n-type and p-type GaAs can be used to detect p-n junctions. By selective etching in 10% NaOH only p-type GaAs is dissolved at 10 ma/cm². In CuSO₄ dissolved in dilute sulfuric acid, copper is deposited only on p-type GaAs; (9) extremely smooth GaAs surfaces are obtained by electropolishing in 10 - 40% KOH or NaOH (1 - 5 a/cm², 1 - 4 min). Professor B. K. Kabanov is thanked for a discussion. There are 3 figures. The most important English-language references are: R. Williams, J. Chem. Phys., 32, 1505 (1960); R. W. Haisty, J. Electrochem. Soc., 108, 790 (1961).

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Electrochemical behavior of gallium ... S/020/62/143/056/022/024
B101/B110

polarization curves in 1 N H_2SO_4 are higher by about 0.75 v than they are in 1 N NaOH; (3) the curves showing the photopotential versus the electrode potential (Fig. 3) indicate the presence of space charge in GaAs; (4) anodic dissolution of n-type GaAs shows a barrier current effect. The wider the space-charge zone, the higher the breakdown voltage: 6 v at $n = 5 \cdot 10^{15} \text{ cm}^{-3}$; 2 v at $n = 5 \cdot 10^{17} \text{ cm}^{-3}$; and 0 v at $n \geq 10^{18} \text{ cm}^{-3}$. At the latter concentration, the space-charge zone is about 100 \AA wide, the electrons overcome the barrier as a result of the tunnel effect, and the dissolution curves for n-type and g-type GaAs coincide; (5) the barrier current, the rise in current strength during illumination, and the positive space charge of n-type GaAs indicate that the electrolyte - GaAs interface behaves like a p-n junction; (6) from $i = edn_1/2\tau$ (n_1 = concentration of free electrons; d = width of space-charge zone; τ = lifetime of minority carriers) the current density is estimated at 10^{-6} a/cm^2 for $n_1 = 10^8 \text{ cm}^{-3}$; $d = 10^{-5} \text{ cm}$; and $\tau = 10^{-10} \text{ sec}$,

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S/O20/62/143/006/022/024
B101/B110

AUTHOR: Pleskov, Yu. V.

TITLE: Electrochemical behavior of gallium arsenide

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 6, 1962, 1399-1402

TEXT: Monocrystalline specimens of n-type GaAs, alloyed with S and Te concentration, n, of free electrons, $5 \cdot 10^{15} - 10^{19} \text{ cm}^{-3}$), and of p-type GaAs, alloyed with Zn and Mg (hole concentration $p = 2 \cdot 10^{18} - 10^{19} \text{ cm}^{-3}$) were examined. Polarization curves were plotted, and the photoeffect with pulsed illumination was measured in an N_2 or H_2 atmosphere.

Results: (1) The steady potential of GaAs depends very little on the concentration of the solution, and is virtually independent of the type of conductivity. In the dark, it is ~ -0.4 v in 1 N NaOH, and ~ 0 v in 1 N H_2SO_4 . During illumination, the potential of n-type GaAs drops by ~ 0.3 to 0.4 v, while that of p-type GaAs slightly rises; (2) anodic dissolution of p-type GaAs follows the Tafel equation with $b \sim 0.1$. The

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S/101/02/CO4/CO5/00570 1
B102/B135

Study of the surface recombination...

increased. 4) Cathodic hydrogen separation reduces τ_e and raises the surface recombination rate, e.g. to 2000 cm/sec for n-type Ge of 3 ohm·cm. There are 6 figures and 18 references: 7 Soviet and 11 non-Soviet. The four most recent references to English-language publications read as follows: W. W. Harvey. J. Phys. Chem. Solids, 14, 82, 1960; W. W. Harvey. J. Phys. Chem. 65, 1641, 1961; H. U. Harten. J. Phys. Chem. Solids, 14, 220, 1960; J. B. Flynn. J. Electrochem. Soc. 105, 715, 1958.

ASSOCIATION: Institut elektrokhemii AN SSSR Moskva (Institute of Electrochemistry AS USSR, Moscow)

SUBMITTED: July 24, 1961

Fig. 2. Surface recombination rate as a function of surface potential for n-type Ge of 20 ohm·cm.

Fig. 4. Effective lifetime (curve 1) and stationary Ge potential (2) variations when oxygen and nitrogen are added (n-type Ge, 20 ohm·cm).

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S/181/62/004/002/005/05
B102/B138

AUTHORS: Tyagay, V. A., and Pleskov, Yu. V.

TITLE: Study of the surface recombination rate at the interface between germanium and an electrolytic solution

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 343-349

TEXT: The effect of the composition of a solution and external field strength on the surface recombination rate was studied by the method of photoconductivity drop. Thin germanium plates $5 \cdot 15 \cdot 0.2-0.5$ mm, with diameter less than the diffusion length of the minority carriers were provided with ohmic contacts (Sn+Sb for n-type and Sn+In for p-type Ge), and placed in aqueous solutions of high-purity NaOH, KI and $K_3Fe(CN)_6$. They were illuminated by a pulsed lamp (3 μ sec pulse duration) and the conductivity increase due to photoeffect was amplified and shown on a MO-4 (IO-4) oscilloscope. The germanium samples investigated had the following parameters: n-type: 40/2.5, 20/1.5, 3/0.7; p-type: 20/1, 3/0.7 (resistivity/minority carrier diffusion length). Results were as follows: 1) The curve for the dependence of effective lifetime τ_e and

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L 12817-63

ACCESSION NR: AT3003013

Surface-recombination rate was measured in thin Ge specimens immersed in NaOH. Electrode potential vs. effective lifetime of minority carriers characteristic and a current-voltage characteristic of the Ge-electrolyte contact are presented. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 15May63

ENCL: 00

SUB CODE: PH, GE

NO REF SOV: 002

OTHER: 006

Card 2/2

I 12817-61 EMP(q)/EWT(m)/BDS AFETC JD/RH 8/2927/62/000/000/0249/0251
ACCESSION NR: AT3003013 56

AUTHOR: Pleskov, Yu. V.; Tyagay, V. A.; Krotova, M. D.

TITLE: Investigation of properties of Ge surface contacting a liquid phase
[Report at the All-Union Conference on Semiconductor Devices, Tashkent, 2-7 October, 1961]

SOURCE: Elektronno-dy*rochny*ye perekhody* v poluprovodnikakh. Tashkent, Izd-vo AN UzSSR, 1962, 249-251

TOPIC TAGS: Ge surface conductivity, Ge surface recombination

ABSTRACT: Effects of, type of electrolyte and field strength at the interface on the surface conductivity and surface-recombination rate of Ge were investigated experimentally. Resistivities of the emitter, base, and collector were 0.06, 3, and 8 ohm.cm respectively; base width, 0.5 mm. The surface conductance was measured with the transistor immersed in normal heptane, carbon tetrachloride, N-methylformamide, and purified water. Carbon tetrachloride did not change the surface conductance. Effect of heptane is represented by a curve in the article. Methylformamide and water caused an increase in the surface conductance by 2-3 orders.

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S/020/61/141/11/01/01
B101/E144

Distribution of potentials on the ...

J. F. Dewald, The Surface Chemistry of Metals and Semiconductors, Ed. H.C. Gatos, 1960, p. 209; ref. 7: H. Gerischer, Advances in Electrochemistry, N. Y., 1961.

ASSOCIATION: Institut de Chimie de l'Académie des Sciences (U.R.S.S.)
Electrochemistry of an ... of Semiconductors

PRESENTED: July 21, 1961, by ... Franklin, Academician

SUBMITTED: July 20, 1961

Fig. 1. $\tau_{off}(\varphi)$ for five Ge samples. Electrophysical properties of samples.

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E153/E144

distribution of potentials on the ...

of the space charge depends on the second component of the Galvani potential. (5) $\phi_s = (E_F - E_i)/q + V_s$ does not depend on the Fermi level because a change of E_F is compensated by an inverse change of V_s (q = electron charge). (6) For the potential of plane bands, $V_s = 0$.

For germanium with intrinsic conductivity, the potential of plane bands was found to be -0.51 v in 1 N NaOH, and 0.13 v in 1 N H₂SO₄, in good agreement with Ref. 7 (see below). For the potential of plane bands, the volume charge of the semiconductor equals zero. The electrode surface, however, is negatively charged due to oxidation. The amount of this charge depends on the pH of the electrolyte. Electrostatic adsorption of cations occurs. The structure of the double layer at the Ge - electrolyte interface with potential of plane bands reminds of the mercury surface in the zero point with specific adsorption of iodine ions. There are 8 figures and 8 references: 1 Soviet and 7 non-Soviet. The four most recent references to English-language publications read as follows: J. F. Dewald, Semiconductors, Ed. M. B. Hannay, N. Y., 1959, p. 727; M. Treussart, Modern Aspects of Electrochemistry, Ed. J. O'M. Bockris, 2, 1959, p. 131.

Card 3/0

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